

NATIONAL MARROW DONOR PROGRAM®**Graft-Versus-Host Disease**

Graft-versus-host disease (GVHD) is a common side effect of an allogeneic bone marrow or cord blood transplant (also called a BMT). An allogeneic transplant uses blood-forming cells donated by a family member, unrelated donor or cord blood unit. In GVHD, the immune cells from the donated marrow or cord blood (the graft) attack the body of the transplant patient (the host). GVHD can affect many different parts of the body. The skin, eyes, stomach and intestines are affected most often. GVHD can range from mild to life-threatening.

Why Graft-Versus-Host Disease Occurs

GVHD occurs because some of your donor's immune cells (known as T cells) attack cells in your body. The immune system uses markers called HLA antigens to recognize which cells belong in your body and which do not. When it finds cells with HLA antigens it does not recognize, it attacks those cells. In GVHD, your donor's immune cells do not recognize the HLA antigens on your body's cells, so they attack your cells. That is one reason your donor's HLA antigens need to match yours as closely as possible. Selecting a closely matched donor or cord blood unit can help reduce your risk of getting GVHD. (For more information, see [HLA Matching: Finding the Best Match.](#))

Preventing Graft-Versus-Host Disease

Doctors have found several ways to help reduce the risk a transplant patient will get GVHD:

- Using a closely matched donor or cord blood unit.
- Using umbilical cord blood -- after a cord blood transplant fewer patients get GVHD and those who do tend to get less severe GVHD.
- Using drugs to prevent GVHD -- you will be given drugs to help prevent GVHD. These drugs work well for many patients. Some examples of drugs often used for this include cyclosporine and methotrexate.
- Removing the T cells from the donated cells before transplant -- the T cells are the immune cells that attack your body when you get GVHD. New methods of removing some T cells from the donor's cells before the transplant may reduce the risk of GVHD.

Acute and Chronic Graft-Versus-Host Disease**Acute GVHD**

Acute GVHD appears within the first 100 days after transplant. Acute GVHD can range from mild to life-threatening. Symptoms depend on which parts of your body it affects and how severe it is:

- It may appear as a rash on your skin. It often starts on the palms of the hands and soles of the feet, and can spread later to other parts of the body. If GVHD is severe, your skin may blister and peel.
- You may have cramping, nausea or diarrhea if it affects your stomach or intestines.
- You may have yellowing of your skin and eyes (jaundice) if it affects your liver.

Transplant patients are usually given drugs to try to prevent GVHD for the first six months after transplant.

Chronic GVHD

Chronic GVHD can begin anytime during or after the third month post-transplant. Transplant patients who get acute GVHD are more likely to also get chronic GVHD, but it can also appear in patients who did not get acute GVHD. Chronic GVHD can range from mild to life-threatening. Some transplant survivors have problems with chronic GVHD for many years.

Getting too much sun on your skin can trigger GVHD. To prevent this, always wear sunscreen (SPF

15 or higher) on any skin that will be exposed to the sun. This includes your face, the backs of your hands and the tops of your feet. When you go outside, try to stay in the shade. Wear a hat, a long-sleeved shirt and long pants if you will be in the sun. Clouds do not protect you from the sun, so follow these guidelines even on cool and cloudy days.

Signs of Chronic GVHD

Signs of chronic GVHD might not appear until after you go home from the transplant center. You and your doctor should watch for signs of GVHD so if it occurs, you can be treated promptly. Sometimes GVHD can be hard to diagnose because the early signs could also be caused by other problems. If your doctor is not a transplant specialist, he or she should discuss your symptoms with your transplant doctor. If you have any symptoms that could be a sign of GVHD, tell your doctor. It is important to treat GVHD early.

The most common symptoms of chronic GVHD are:

- A rash or changes in skin color or texture
- Dry or irritated eyes
- Pain, dryness or sensitivity in your mouth

Other less common symptoms of chronic GVHD include:

- Thinning hair
- Brittleness or changes in the texture of your fingernails
- Dry or irritated vagina (women).
- Nausea, vomiting, diarrhea, a loss of hunger or an unexplained drop in weight

In more advanced GVHD, your skin could feel tight or hard. Also in more advanced GVHD, your joints could feel stiff or become hard to straighten (fingers, wrists, elbows, ankles or knees).

Treatment of GVHD

When GVHD appears, it is important to begin treatment as early as possible for the best results. For both acute and chronic GVHD, the main treatment is to give steroids that weaken the immune system. The most common is prednisone along with cyclosporine. If this treatment does not help you, your doctor can try other treatments. Because researchers are working to find better ways to treat GVHD, some treatments your doctors may offer may be available through [clinical trials](#).

These treatments can help many patients, but not all. Acute GVHD can turn into chronic GVHD. Chronic GVHD can last for months or years. For some survivors, the symptoms are painful or very hard to manage, while for others the symptoms are a minor irritation.

Living with Chronic GVHD

Living with chronic GVHD means dealing with the symptoms of GVHD. It may mean dealing with side effects of your treatment as well. Chronic GVHD may put limits on what you can do or how well you feel. Doctors continue to work to find better ways to prevent, treat and manage GVHD.

Side Effects of Treatment

The steroids used to treat GVHD will weaken your immune system. (The GVHD itself also weakens your immune system.) That puts you at a higher risk for getting an infection. You can take steps to avoid infection while you are being treated for GVHD. Steps to avoid infection include [preparing your home](#), making [healthy choices](#) and following [food guidelines](#).

The steroids often used to treat GVHD can also affect the way you feel and the way you look. Sometimes they cause:

- Depression or anxiety
- Confusion

- Mood swings (you feel very happy one moment and very sad or angry the next)
- Weight gain
- Bloating or round face
- Extra hair growth, especially on the face and back

If your treatment affects your mood or personality, understanding that these changes are caused by your treatment may help you and your family and friends deal with the changes. These side effects will go away when you are done with your treatment.

Some ways to manage these changes include:

- Ask your doctor whether he or she can adjust your treatment or prescribe drugs to lessen the changes in your emotions.
- Seek support from your family and friends.
- Join a support group of transplant survivors where you can share your experiences. It can help to talk to others who are dealing with similar challenges. (A support group may also be helpful for your family and friends.)
- Get support from a professional counselor.

Long-Term Side Effects

Some transplant survivors have long-term side effects even after the GVHD is gone. Some side effects and ways of dealing with them include:

- Skin sensitivity -- Use sunscreen, a hat and clothing to keep from getting too much sun on your skin and avoid mid-day sun.
- Cavities and gum disease -- This can be a side effect of dry mouth caused by GVHD. Have regular dentist visits two to three times a year to check for problems. Doctors also recommend a fluoride rinse for some people.
- Dry or irritated eyes -- Eye drops may help. If eye drops are not enough, there are other treatments to try. In some cases, the ducts that drain tears can be plugged.
- Long-term diarrhea or problems digesting food -- Talk with a dietitian at your transplant center for the best foods to eat and what to avoid.

Some people have other, less common side effects, and some do not have any of these side effects.

Information for Your Doctor

The Physician Resources section of this Web site includes information written for doctors about managing GVHD. It also includes references to medical journal articles relevant to the information on this page. You may want to share this information with your doctor: [Improved Management of Graft-Versus-Host Disease](#).

The tips on this Web page are general recommendations. They are not intended to replace, and should not replace, your own doctor's advice. Your doctor will give you recommendations based on your own particular situation. If you have questions, talk to your doctor.

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